What is claimed is:

1. An endovascular laser treatment device adapted to be used with an optical fiber inserted into a blood vessel, the endovascular laser treatment device comprising:

a spacer arranged near a distal end of the optical fiber and operable to position the distal end of the optical fiber away from the inner wall of the blood vessel.

2. The endovascular laser treatment device according to claim 1, wherein:

the spacer is in an undeployed state while being inserted into the blood vessel; and

when the spacer is inserted into the vessel, the spacer is in a deployed state to position the distal end of the optical fiber away from the inner wall of the vessel.

3. The endovascular laser treatment device according to claim 1, wherein:

the spacer is attached to the optical fiber near the distal end;

the spacer is in an undeployed state while being inserted into the vessel; and

when the spacer is inserted into the vessel, the spacer is in a deployed state to position the distal end of the optical fiber away from the inner wall of the vessel.

4. The endovascular laser treatment device according to claim 3, wherein the spacer includes a plurality of ribs which expand in a radial direction into the deployed state.

5. The endovascular laser treatment device according to claim 3, wherein the spacer includes a tube surrounding the optical fiber and having its distal portion attached to the optical fiber, the tube having a plurality of ribs positioned near the distal portion, the ribs expanding in a radial direction into the deployed state when the tube is moved relative to the optical fiber.

6. The endovascular laser treatment device according to claim 1, further comprising:

a first tube adapted to receive the optical fiber; and

a second tube surrounding the first tube and having its distal portion attached to the first tube, the spacer being arranged near the distal portion of the second tube

and operable to position the distal end of the optical fiber away from the inner wall of the vessel when the second tube is moved relative to the first tube.

7. The endovascular laser treatment device according to claim 6, wherein the second tube includes a plurality of ribs defining the spacer and being positioned near the distal portion, the ribs expanding in a radial direction into a deployed state when the second tube is moved relative to the first tube.

8. An endovascular laser treatment device comprising:

an optical fiber operable to be inserted into a blood vessel; and

a spacer arranged near a distal end of the optical fiber and operable to position the distal end of the optical fiber away from the inner wall of the blood vessel.

9. The endovascular laser treatment device according to claim 8, wherein:

the spacer is in an undeployed state while being inserted into the blood vessel; and

once the undeployed spacer is inserted into the vessel, the undeployed spacer is deployed to position the distal end of the optical fiber away from the inner wall of the vessel.

10. The endovascular laser treatment device according to claim 8, wherein the spacer includes a plurality of ribs which expand in a radial direction into a deployed state.

11. The endovascular laser treatment device according to claim 8, wherein the spacer includes a tube surrounding the optical fiber and having its distal portion attached to the optical fiber, the tube having a plurality of ribs positioned near the distal portion, the ribs expanding in a radial direction into a deployed state when the tube is moved relative to the optical fiber.

12. The endovascular laser treatment device according to claim 8, further comprising a sheath adapted to be inserted into the vessel, wherein the optical fiber and the spacer are adapted to be inserted through the sheath.

13. The endovascular laser treatment device according to claim 8, further comprising:

a first tube adapted to receive the optical fiber; and

a second tube surrounding the first tube and having its distal portion attached to the first tube, the second tube having a plurality of ribs defining the spacer and being positioned near the distal portion of the second tube, the ribs expanding in a radial direction into a deployed state when the second tube is moved relative to the first tube.

14. The endovascular laser treatment device according to claim 8, further comprising a tube surrounding the spacer, wherein the spacer has a plurality of ribs, the ribs expanding in a radial direction into a deployed state when the tube is moved relative to the optical fiber.

15. The endovascular laser treatment device according to claim 8, further comprising a tube surrounding the spacer, wherein the spacer has a plurality of ribs attached to the optical fiber, the ribs expanding in a radial direction into a deployed state when the tube is moved relative to the optical fiber.

16. The endovascular laser treatment device according to claim 15, wherein the plurality of ribs have proximal ends attached to the optical fiber and distal ends that are unattached to the optical fiber.

17. The endovascular laser treatment device according to claim 8, wherein the spacer includes a balloon positioned near the distal end of the optical fiber.

18. The endovascular laser treatment device according to claim 17, wherein the spacer further includes a tube surrounding the optical fiber and being attached to the balloon, the balloon expanding into a deployed state when fluid is introduced into the tube.

19. The endovascular laser treatment device according to claim 8, further comprising a deployment device coupled to the spacer and having a first position in

which the spacer is in an undeployed state and a second position in which the spacer is in a deployed state.

20. The endovascular laser treatment device according to claim 19, wherein the deployment device has one or more intermediate positions between the first and second positions to vary the spacing between the distal end of the optical fiber and the inner wall of the vessel.

21. The endovascular laser treatment device according to claim 19, wherein the deployment device provides continuous position variability between the first position and the second position.

22. An endovascular laser treatment device for treating varicose veins comprising:

an optical fiber operable to be inserted into a blood vessel;

a spacer arranged near a distal end of the optical fiber, the spacer having an undeployed state while being inserted into a blood vessel and a deployed state, the spacer in the deployed state holding the distal end of the optical fiber out of contact with the inner wall of the blood vessel when the distal end of the optical fiber is within the blood vessel; and

a deployment device operable to deploy the spacer from the undeployed state to the deployed state.

23. The endovascular laser treatment device according to claim 22, wherein the deployment device is further operable to move the spacer from the deployed state to the undeployed state.

24. The endovascular laser treatment device according to claim 22, wherein:

the spacer is attached to the optical fiber near the distal end of the optical fiber; and

once the undeployed spacer is inserted into the vessel, the undeployed spacer is deployed to hold the distal end of the optical fiber out of contact with the inner wall of the blood vessel.

25. The endovascular laser treatment device according to claim 22, further comprising:

a first tube adapted to receive the optical fiber; and

a second tube surrounding the first tube and having its distal portion attached to the first tube, the spacer being arranged near the distal portion of the second tube and being deployed when the second tube is moved relative to the first tube.

26. An endovascular laser treatment device comprising:

a sheath adapted to be inserted into a vessel;

an optical fiber for insertion through the sheath; and

a spacer positioned near a distal end of the optical fiber and operable to position the distal end of the optical fiber away from the inner wall of the blood vessel, the spacer being in an undeployed state while being inserted into the blood vessel and in a deployed state in which the spacer is expanded in a radial direction after the spacer is inserted into the blood vessel.

27. An endovascular treatment method comprising:

inserting into a blood vessel a spacer for use with an optical fiber, the spacer being operable to position a distal end of the optical fiber away from the inner wall of the vessel; and

applying laser energy through the distal end of the optical fiber.

28. The method according to claim 27, wherein the spacer is attached to the optical fiber near the distal end of the optical fiber and the step of inserting includes inserting the optical fiber.

29. The method according to claim 27, after the step of inserting and before the step of applying, further comprising inserting the optical fiber into the vessel.

30. The method according to claim 27, after the step of inserting, further comprising deploying the spacer to position the distal end of the optical fiber away from the inner wall of the vessel.

31. An endovascular treatment method for treating varicose veins comprising:

inserting an optical fiber into a blood vessel, the optical fiber having a distal end;

positioning the distal end of the optical fiber within the blood vessel out of contact with the wall of the blood vessel; and

delivering laser energy through the distal end of the optical fiber.

32. The method according to claim 31, wherein the step of positioning includes the step of deploying a spacer from an undeployed state to a deployed state near the distal end of the optical fiber.

33. The method according to claim 31, prior to the step of inserting an optical fiber, further comprising inserting a sheath through the vessel wherein the step of inserting an optical fiber includes inserting through the sheath the optical fiber and a spacer.

34. The method according to claim 33, prior to the step of delivering laser energy, further comprising securely connecting the optical fiber to the sheath.